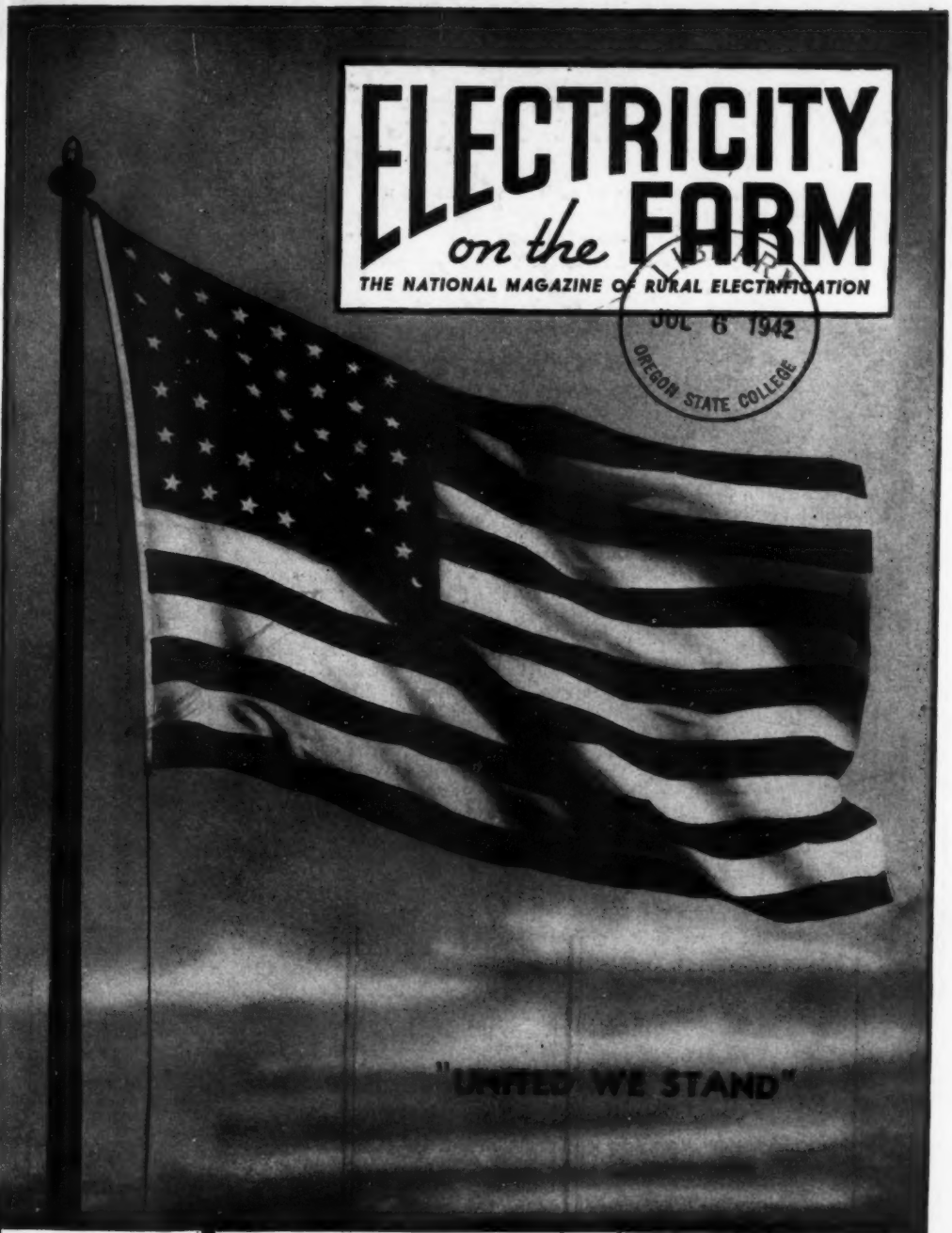
GINEERING ROOM



ELECTRICITY on the FARM

THE NATIONAL MAGAZINE OF RURAL ELECTRIFICATION

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"UNITED WE STAND"

★ JULY 1942 ★

IN THIS ISSUE . . . Cows Can't Do It Alone . . . Blackout (A Story) . . . Electricity Saves Waste . . . Beet Seed Shearer . . . Fence Unit Keeps Cows Clean . . . 5 H.P. Thresher . . . Be A Robinson Crusoe . . . Electric Chain Hoist For Farm . . . Dry Foods To Save Them . . . Keep The Mixer Mixing . . . Sewing Machine Earns Money . . . Questions Answered . . .

★ Priorities and Production ★

In order to make the best use of materials for war, a materials preference and limitation system has been set up in this country. It has upset the plans of many manufacturers, business men and consumers—war is bound to, but defeat would be worse. Some of the provisions of the system of interest to farmers are presented here for your information.

"P" and "L" Orders Priorities and Quotas

Preference ratings or "P" orders state which manufacturers or users shall be supplied, first, second, third . . . with steel, copper and other war materials. These are priority ratings. We hear of them as A-1-a, A-3, A-10, B-3—*priorities.* Top rating gets first dip in the materials pile; lower ratings dip later—if there is any pile left. "L" or limitation orders state the limits or quotas which may be manufactured—if materials are available. For instance, Order P-95 gave A-3 preference priorities for farm machinery, equipment and parts up to November 1, 1942. Order L-26 gave quotas for each type of machine which could be made by manufacturers. The quotas were based on 1940 production. Milking machines were given a quota of 206%; shallow well water systems over 250 gal. per hr., 100%; water system parts 140%. There are many items on this list, including milk coolers, cream separators, other dairy equipment, ensilage cutters, feed grinders, sprayers, water systems and pumps, barn equipment, incubators, brooders, and electric fences. Manufacturers were permitted to build these quotas of machines, *if they could get materials* under the A-3 rating. Because materials were not always available under this rating, manufacturers of certain equipment including some dairy machinery and equipment, poultry equipment and crop-processing equipment have had a special A-1-a rating during April, May and June. All of the items above may be purchased by farmers from regular dealers without priorities. Repair parts for farm equipment do not need a priority.

Production Requirements Plan

A new system for manufacturers is now gradually going into effect. It is the Production Requirements Plan under which the manufacturer applies for materials on the basis of his inventory and the end use to which his manufactured products are to be put. He does not need to apply for quotas on each individual machine, and it will give him an opportunity of making some improved machines not in production in 1940. It should save much "red tape" and make the allotment system more flexible. The WPB is also being decentralized so that applications can be acted on closer to the job. Some materials and equipment not included in Order P-95 may now be obtained without priorities by merely signing a statement that they are needed for repairs or for farm production.

PD-1-A Blanks

For some items, like motors, not a part of a complete farm machine (except motors for irrigation), and for line extensions over 250 feet, etc., it is necessary for a farmer to obtain an individual proirity before a dealer or contractor can sell him new equipment or materials. An order form PD-1-A must be filled out requesting the priority and sent to the Director of Industry Operations, War Production Board, Washington, D. C. These forms may be obtained from regional offices of the WPB or County War Boards. The blank may look formidable. It is designed for use of manufacturers, dealers, farmers and others. Your County War Board or your local power company should be able to help you fill it out. It is not too difficult. Action on the request may be taken in anything from a few days to a few weeks. If filling this blank is irksome, just remember that it is also irksome for a soldier to be shot, or for a defeated Pole or Frenchman to be a Nazi slave. We're in a war. If you don't need a motor or other restricted equipment, do not waste WPB time by applying. If you do need it to help win the war, shoulder your PD-1-A and fight.

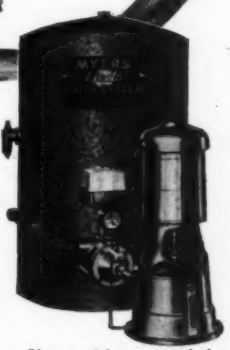
Please bear in mind that new WPB orders are being issued every day, and that some of the above may be changed by the time you read this.

RUNNING WATER IS THE ANSWER!

Helps PRODUCE MORE with LESS LABOR

WATER IS FREE—Use It LIBERALLY

Water is one of Nature's most productive gifts. Take advantage of your well, pond or stream by full-time use of your present water service equipment. *Full* utilization of an adequate supply of running water to barn; feed lot, poultry house and garden will increase production of milk, eggs, meat and vegetables—with less labor! Liberal use of water will also keep your farm animals healthier and more resistant to disease. Handy faucets will supply water for cooking, canning, sterilizing and fire protection. Use water freely—and keep your well equipment, water system, pump jack or pump operating efficiently by having your experienced Myers dealer check it over for any needed repairs. Mail coupon for his name and free book.



If you wish to extend the use of your present pumps or water system talk it over with the Myers dealer near you.

MYERS
WATER SYSTEMS

Take Off Your Hat to the MYERS

THE F. E. MYERS & BRO. CO.
Mfrs. of Farm Operating Equipment
1126 Fourth St., Ashland, Ohio

Send free information on items checked and name of your nearest dealer.

Water Systems	☐	Sump Pumps	☐	Power Sprayers	☐
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Name .....

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Editor's Chat

The Agricultural Engineer

This month the American Society of Agricultural Engineers holds its 36th annual meeting in Milwaukee.

Technically, an agricultural engineer is a person who applies the principles of engineering to the problems of agriculture. He designs, constructs, improves the economics of, and teaches, tractors, farm machinery, farm buildings and their equipment, soil conservation, irrigation, drainage and electrical equipment for the farm.

Now there are a lot of agricultural economists and other necessary evils, including editors and politicians who keep preaching what a heck of an occupation farming is. You never make the cost of production; you are downtrodden; farming's a slave's life; the other fellow has the best of you. Rot! Farmers are not morons. Let the other fellow be the gloom spreader. The agricultural engineer hunts out the dark spots, but he applies himself to making them bright.

When the fertile soil is gashed by erosion, the ag engineer builds terraces and dams, and heals the wounds. When the soil is cold and hard and sour, he drains it and makes it sweet. When meadows and gardens get dry and droop, he pumps water for irrigation and renews the bloom. If the old house is cold and dismal and bewitched with hard labor, he provides running water, lights, a refrigerator and an oil burner. Henhouses with downcast, eggless hens are filled with hen-chatter and winter eggs when the engineer provides light, fresh air and warmed running water. And that barn, dripping inside with cold winter condensation, has its tears of decay dried by proper ventilation. The farm boy who is "fed up" with farm drudgery gets a new sparkle in his eye when that well engineered, rubber-tired tractor responds to his control. And when labor gets short, up steps the ag engineer with a milking machine, a one-man hay hoist, a push-button ice-substitute, an automatic electric range and a dishwasher. Smiles chase away the scowls.

The Agricultural Engineer is the fellow who puts a smile on Agriculture.

—I'm proud I am a Farmer—

Half Way

It is mid-summer; harvest time. The 1942 battle on the farm front is half finished. But the war is not won.

Wheat bins are running over. Just now it seems that more evaporated milk and cheese has been made than we have transportation facilities to handle. But our allies still need it.

A soldier travelling rough terrain under adverse conditions sometimes wonders whether the commander knows where he's going and what's going to happen when he gets there. The commander has his problems too. He must anticipate needs and "what will happen," and be ready. There is only one thing for the soldier to do if we are to win battles. Follow orders.

In following orders the soldier or farmer still has the right to *think* and use his initiative. He has the privilege of planning for the kind of life and country he wants when the war is over. Follow orders now. *We must stand united* in the emergency. Work, buy bonds, accept rationing, turn in scrap materials, produce needed crops—but also *think*. In our quiet hours alone, we must think of what we are fighting for. Is it the *freedom* of action which has made America? Or do we want to be regimented, leveled off, told what to do, and made to pay tribute to racketeering bosses? If we still want a land where our children have the opportunity to do better than we have; if it is *freedom* we want, *we must think, plan and fight for it.*

George W. Kable

ELECTRICITY ON THE FARM
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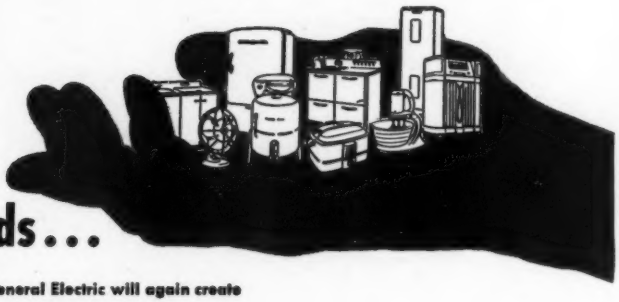
First...Win the War!

America must win this war. The task is great. It demands total effort. Today and as long as needed our manpower, resources and facilities must be devoted to building those implements that will help bring victory. Let's win this war as quickly as possible — and completely!



Afterwards...

When complete victory has been won General Electric will again create and build those appliances that add so much to our American way of life.

In the meantime

Take good care of the electric appliances you now own. If they should need repairs call your General Electric Dealer. He will help make what you now have last until we can again build the new things you will want.

Ask your General Electric Dealer for your copies of (1) "A CAPTAIN IN THE KITCHEN", a handbook telling how to take care of your electric appliances, and (2) "HOW TO GET THE MOST OUT OF THE FOOD YOU BUY." Or send 3¢ in stamps to cover cost of handling, to the General Electric Co., Bridgeport, Conn., Dept. ZG722-30.

GENERAL ELECTRIC

BLACKOUT

By V. OSTERGAARD

A FEW days after our town had gone through its first air-raid drills, with lights out and all, I saw Charlie Dowst in what looked like a hot spot. Service man for the power company, he stood on Main Street beside his repair truck. Its left hand door was open. Anson McCarl, one of our crack farmers, leaned back against the steering wheel as though he meant to keep Charlie from getting in. Anson was a hefty six-footer. Right then, his face, redder'n a gobbling turkey's, he was saying good and loud, "You gotta do something, Charlie! I ain't goin' to take no more of that home-made static!"

Charlie must've seen me coming. He yelled, "Come here, Vic!"

"Dinner time," I said and kept going.

Charlie's climbers scratched on the walk behind me. He grabbed my arm. He has climbed so many poles he almost looks like an animated pole himself, and he growled down at me, "You gotta get that buzzard off my neck, or it's blackout for you."

"I don't enjoy other people's arguments," I said.

"Are we pals or ain't we?" Charlie countered.

"Okay, I'll protect you," I sighed and turned back.

Anson started blasting at me. "Better not stick up for Charlie. He's got to put up a separate transformer for me or find some other way of shutting out the interference from Herbie Funk's haywire equipment. The racket's so bad I can't hardly get any news on the radio.

"Here anything today about Cullen's ship?" I asked.

Anson's angry manner changed. He was just another father who was very anxious to hear about a son in service with the Pacific fleet. Anson said, quietly, "There's a rumor it's been sunk. They don't tell us much, and you can't blame me for wanting to hear what I can. Do something, will you, Charlie?"

"I'll try," he said.

Anson left. I mentioned it was time to eat.

"Yep," Charlie agreed, "and then it'll be time for a ride. I'm going to check hardware and ground connections at Anson's. Might be something his side of the transformer causing the radio interference. While I do that, you pay Herbie a visit."

"Why should I?"

"I ain't goin' to take no more of that home-made static!"

"Because of Cullen McCarl who is fighting our fight. And——" Charlie grinned, "——because I'm your pal."

So we ran out and parked the service truck in the driveway before Anson's closed gate. Anson argued it was useless for him to go along and see Herbie. They'd already had a petty hot argument.

He gave in, though. Charlie was already up the transformer pole inspecting things when we crossed the road to Herbie's place. Passing his new, white house, I got a glimpse of his daughter Esther smiling at us from the kitchen window. But she appeared pale and not very happy. Probably worrying about Cullen, I thought.

Anson and I went on to the granary where something buzzed and clattered. I stepped inside, first. Herbie, about as big as Anson, if not so heavy, was shoveling wheat into a fanning mill powered by an electric motor. Now and then its flat belt slipped, and the commutator drew a steady stream of sparks from the exposed brushes. There was some of the home-made static.

Herbie yelled, "How's the landshark?"

"Always looking for suckers," I fired back.

He grinned. "I got some certified Thatcher wheat, here. Help me advertise it's for sale, and I might take a look at your bait, come spring."

"It's a deal," I said. "But there's another thing: Anson McCarl can't hear his radio too well. We thought——"

"Get outa here!" Herbie roared, staring past me.

I didn't have to look back to guess that Anson had come in. "Take it easy, Herb," I said. "We——"

"You!" he interrupted. "What call you got to butt in?"

"Give me a chance, Herb, and I'll tell you. There's several reasons: Cullen and Esther together make one. A family row won't make them happy. As for me, I got to thinking that radio interference ought to be everybody's business. 'Specially in town. The neighbors cuss my wife's vacuum cleaner and I cuss theirs. Ought to be a law. Anyhow, I'm here to see if I could do anything for you and Anson, while Charlie's checking things over. No harm talking things over, is there?"

"No—oh, no!" Herbie answered, his voice raspy and sarcastic. He turned a switch and the mill stopped clattering. "But everything leads back to Anson, don't it? He gets up five o'clock in the morning so he can have more time to listen to the radio in the middle of the day. No sense in it. Plenty of time for news in the evening when my motors aren't running. Furthermore, I——"

"Herbie, I was thinking I'd get my wife's vacuum cleaner looked after. Wouldn't cost much for new brushes, and cleaning the commutator, would it?"

"Not a heck of a lot," he snapped, "but as I was saying——"

"Or new motors would do it, Herbie, only the defense program says we should repair things when possible. Like this belt hook-up of yours, f'rinstance. I see it slipping. Waste of power, huh?"

Herbie's face puckered up. His hands tightened on the scoop shovel. He said, his voice trembling, "Looky, I've put all my spare cash into defense bonds, so I'm not worrying about either buying or repairing. As for the rest: Cullen's engaged to my daughter. I'm plenty fond of him myself. But I can live without listening to the radio every half hour and so can his pa. All of which leaves you and me, Vic, every bit as good friends as when you walked in. Or have I got to show both you and Anson just what I mean?"

"Goodbye, Herbie," I said. "If I find anybody wanting fancy seed-wheat, I'll let you know."

Anson and I walked a piece before he spoke: "You come close to getting your head bashed in by that scoop. That's the way he is. I told you so."

"Yeh, but anyhow we tried."

We found Charlie at the truck. "Anson, everything is okay around your place. I'll say you're a mechanic. How's Herbie?"

Anson told him, short and sweet. He added, "You see to it something's done, Charlie, 'fore I turn ugly, too."

Charlie said nothing till Anson had gone. Then he asked, "What's the low-down?"

"Take a look at Herbie's place and tell me what you see."

"Hm," Charlie answered, rubbing his nose, "there's machinery all over the yard. Pigs, cattle, chickens running loose in between. Kind of a slappy-go-lucky dump. Why d'you ask?"

"That's Herbie all over," I said. "Buys but never repairs. What's a little home-made static to that kind of a guy? Figure out how to change him, and your job is licked. I'm through."

But I wasn't. The thought of Esther and Cullen kept bothering me. Couldn't help being concerned over things he'd help straighten out if he was around. So two days later when everybody had gone to an auction south of town, I drove out to see her.

Anson's gate was open, his car gone. No car in Herbie's garage, either; but three white-face yearlings were in it, nosing around. Esther let me in the kitchen door. She was neat and pretty as the white, red-trimmed room in which we sat and talked about the trouble threatening to keep the Funk and McCarl families separated. Every once in a while the girl dabbed at her eyes with a handkerchief.

"We'd been planning to celebrate Cullen's birthday," she said, "when that rumor about his ship came out. You know the rest, Vic. I don't know what do do. I've written letters to Cullen about it all. Tore them up again. It isn't fair to worry him. And now the party's cancelled. My father won't have it. You see, there's more than just this one quarrel to consider. Anson always has been irritated by my father's ways. He doesn't mean to be careless and cause Anson inconvenience, but——"

"Anson is very exacting," I said. "But about that birthday: when is it?"

"Just a week from today."

"Looks like our best chance of getting Anson and Herbie on friendly terms again. Say that I put on a celebration; or Mrs. McCarl did, those two papas couldn't stay away. They'd have to come. Then, if we got that far, perhaps——"

"Vic, let's try it!"

"Okay," I said. "You quit worrying. Write Cullen a cheerful letter. I'll get things figured out and let you know."

"Thank you, Vic."

Back in Sundale, I worked late and had hardly sat down to supper when my wife answered the door bell and brought Esther in. Her eyes looked big and scared. She said, "Vic, three of our calves went into Anson's yard. He never used to leave his gate open. The calves haven't come back, and now the gate is padlocked. I'm afraid there's going to be trouble."

Wondering if Anson hadn't purposely set a trap, I said, "You tell your father?"

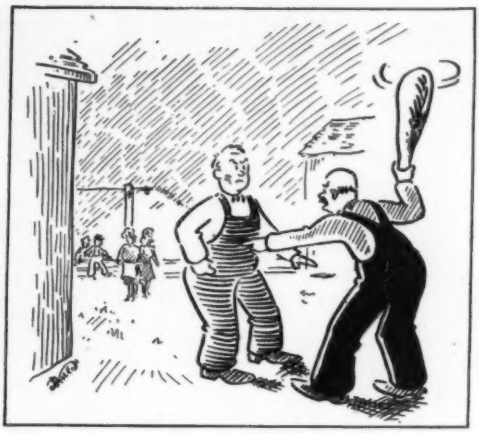
"No, but I'm sure he knows. He looked terribly angry. Hardly touched his supper. Vic, please come home with me. Please!"

"You go. I'm picking up Charlie Dowst."

I yanked him out of his house and into my car while he was still a-yowling, "What for? What's up?"

"Seems like Anson got tired of waiting for you to do something," I snapped, then told him about Esther and the yearlings.

In less than three minutes, we parked beside Esther's car in the driveway at the padlocked gate. We scaled its red boards faster'n I want to climb a gate again, for, between the barn and the yard-light, Anson and Herbie were yelling murder at each other; Mrs. McCarl and Esther, standing under the light, looked too scared to move and Herbie had a club in one hand. "For the last time," he was hollering, "unlock that gate so I can get them beeves out!"



"For the last time," he was hollering, "unlock that gate so I can get them beeves out!"

"Get the static cleaned outen your haywire machines," Anson yelled back, "and you get your steers. Not before."

That club began to move. Esther ran toward her father. Sprinting, I got ahead of her and pushed her aside. I grabbed Herbie's arm. 'Don't be a fool. He'll have to feed your calves. Besides——"

He jerked his arm loose. "Lemme be!" he roared, "or I'll crown you!"

"Herbie," I panted, getting between him and Anson, "it isn't the calves that count. It's getting things straightened out for Cullen's and Esther's sake. They——"

"They ain't getting married. Not any more. Don't pull that line, Nosey. Cullen would be telling me how to run my farm like his pa's been trying to tell me for twenty-five years, and it don't work." Herbie grabbed my coat collar. "Now, will you mind your own business, or have I got to put you to sleep?"

"Anson's a mechanic," I persisted. "He could help you keep your machines in shape. You could help him get first-class seeds, or——" The club started upward. Anson jumped at us. His arm shot out, pushing me back. I sat down hard, the

"Kind of a Slappy-go-lucky dump. Why d'you ask?"

last of my proposal turning into a grunt. Herbie's club, by then, was swinging at his neighbor. Anson ducked. In the same second Charlie yelled, "Blackout! blackout!" The yard and house-lights went out leaving us all in darkness, and Charlie hollered again, "If it's going to be war, let's make it real. No holds barred, and here I come!"

"Blackout! Blackout!"

I couldn't figure Charlie doing any good, plowing blind through that pitchy blackness into me or Herbie or Anson, for he wouldn't know who he was fighting. But the only way I could duck was to stretch out flat, and Charlie's legs tangled with mine. He hit the ground with a sighing "Oomph!" and then the lights came on again.

Esther was standing beside the yard pole, like she had closed the switch which Charlie pulled. Charlie was rubbing his nose and getting up. Anson and Herbie still faced each other. They looked pretty foolish. Herbie let his club drop. He said, "Sorry, Anson. Guess we got no business causing blackouts. We better pull together."

Anson McCarl held out his hand.

A few days later, her eyes shining, Esther stood in my office. "The birthday party is being turned into a wedding," she said. "Cullen wired. His ship is in port for repairs. And he's getting three weeks furlough. You'll come, won't you?"

"Wild horses couldn't drag me away. How's Herbie?"

She laughed. "Wild horses couldn't drag him away from Anson. They're fixing our electric machines."

Fence Unit Keeps Cows Clean

By **MARTIN A. TAYMAN,**
Illinois Northern Utilities Co.

WHILE the standard uses of electricity serve a great many purposes on the farm, occasionally some resourceful farmer comes forward with a new application which relieves him of another chore or makes his work less worrisome.

Such a person is John M. Babler of near Freeport, Illinois, who recently developed a novel adaptation of electric fence equipment to make cows behave while being milked.

Mr. Babler has a herd of about forty Holstein cows and operates his dairy under exacting sanitary conditions. The cows are washed before being milked, but after being placed in their stalls for milking, they often step back into the gutter and soil their legs, tails, and udders.

Since Mr. Babler had been using an electric fence around temporary pasture fields on his farm, and had learned of the healthy respect cattle hold for the single strand of stinging wire, he decided to use an extension of the fence to keep the cows forward in their stalls.

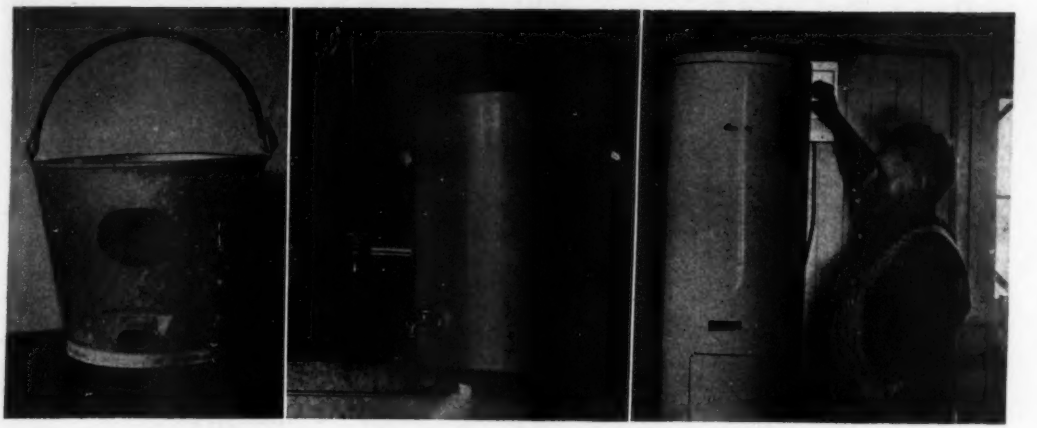
His solution to the problem was to run a wire from the fencing unit along the ceiling behind the cows directly above the gutter. A single wire was attached to this ceiling wire at each stall where there was an offending cow and was permitted to hang just back of the hind quarters of the cow.

The dangling wires are held up with the current turned off until the cows are in their stalls. The wire is touched by the cow only when she backs into the gutter. After two or three reminders, she is willing to stay forward in her stall until released. When the cow switches her tail it often comes in contact with the wire. However, the tail is bushy enough that it does not seem to bother the cow.

Hooking up the equipment to the electric fence was made easy for Mr. Babler because the control equipment for his pasture fences was already located in the barn.

The cost of the installation and its use is negligible, and the unit is still connected to the pasture fence.

I asked Mr. Babler if the electrically charged wire at the rear of the cows did not make them nervous and as a result reduce their milk production. He assured me that it did not and that the use of the equipment had had no effect on production.



Electrical water heating equipment with capacities varying from a 12-quart pail, and a 15-gallon open top tank, to a 30-gallon standard water heater under pressure.

Cows Can't Do It Alone

Sanitary Milk Calls for a Plan by the Dairyman and Equipment for Keeping Milk Utensils Clean and Sterile

By **PROF. HOBART BERESFORD,**
University of Idaho, Moscow, Idaho

DAIRY products face shipping and storage requirements imposed by war conditions that demand the highest possible quality of raw milk. Cheese and butter needed for our armed forces must be of a quality to meet long shipment and extended storage periods. Evaporated milk and dry milk powder must be processed from the highest quality of milk, which necessitates every precaution in sanitation and the handling of the raw milk on the farm. With the new Federal requirements to be met, the average dairy farmer faces the problem of immediate improvement in the quality of his product.

Due to the increased labor shortage every effort should be made to employ labor-saving management and equipment. Milking machines handled by competent operators will do as efficient milking as the average hand milker, and with large herds will save up to one-third of the time and labor required for hand milking. The milking machines must be cleaned properly and sterilized after each use. Cleanliness and sanitation is required for stables, milking utensils, and the workman.

Hot Water Aids Cleaning

Scalding hot water is necessary to sterilize the milk utensils. The utensils may be clean from the standpoint of dirt, but unless sterilized with scalding water will be coated with bacteria which cause off-flavors, sour milk, and reduce the quality of the milk. Where limited amounts of hot water are needed the electro-pail may be used to heat 12 quarts of water to 200° F. in about two hours. The 1,250-watt immersion heater is protected by an automatic thermostatic plug which disconnects the cord, should the pail be left empty and the current on.

The 15-gallon insulated top-filled dairy water heating tank equipped with a 1,000-watt immersion-type heater supplies additional hot water where more utensils and equipment must be washed and sterilized.

Under average conditions it takes from 1 to 2 pounds of water changed to steam to handle the metal ware for each dairy cow. Minimum steam requirements and metal ware needs depend upon the management employed in taking care of the milking operation. For large herds one-half pound of metal per cow may be all that is needed; however, for smaller herds a pound of utensils may be required.

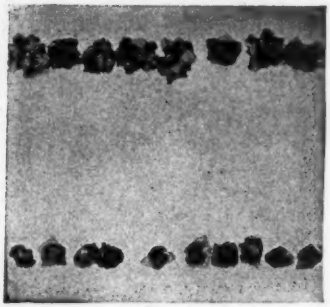
The 30 or 75 gallon steam accumulator will meet the requirement of a 30 or 60 cow dairy herd. These steam accumulators are equipped with 1,500 to 3,000 watt elements and operate at 100 pounds gauge pressure. Costs are kept down by heating the water slowly. (See illus. p. 23.)

Cooling Milk Checks Bacteria

Facilities for cooling milk on the farm to a safe temperature of 50° F. or lower within two hours after milking is one of the most important factors in the production program. If well water is 50° or colder, fresh pumped water provides an economical means of cooling. Where electricity is available the wet storage cabinet, or pre-cooler and dry storage, will aid in maintaining a high quality of milk for a greater profit to the dairyman.

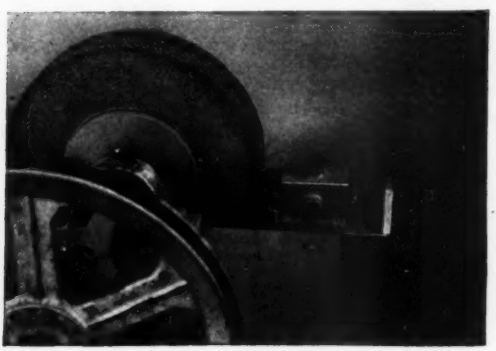
Dairy farmers know that cows can't do it alone. Successful production depends upon a combination of sound management, good equipment, and high producing dairy herds.

Beet Seed Shearer



Top: Unsheared seed. Bottom: Sheared seed.

Above: The California abrasive wheel machine for segmenting sugar beet seed. It is driven by a ¼ hp electric motor. **Below:** Cover removed from shearing mechanism, showing the coarse abrasive wheel and adjustable right-angle shear block.



THE little machine shown in the accompanying photographs is a beet seed shearer. You would never suspect it of doing a plant pulling or heavy hoeing job, but that is just what it is intended to take the place of.

Sugar beets have been an important crop in a number of the western irrigated states and several states bordering on the Great Lakes for a number of years. With the present shortage of sugar, everybody is interested in sugar beets.

Beets as a crop call for considerable hand labor. The seeds of the beet are light, corky, little-head-lettuce appearing affairs. These little corky heads often contain more than one seed and they are of such irregular shape and size that they are very difficult to plant uniformly. The practice has been, therefore, to plant them thick and then go through the field and thin out the plants by hand. It is a hard, tedious job. Mechanical methods of thinning have been only partially satisfactory because of these multiple-seed balls.

Now the Division of Agricultural Engineering of the University of California has developed this simple machine for shearing off the loose leaves and breaking those seed balls down to single seeds. The result is single seed planting, better controlled spacing, much less seed per acre, greatly reduced labor in thinning, and a better opportunity to harvest the beets satisfactorily with a mechanical harvester.

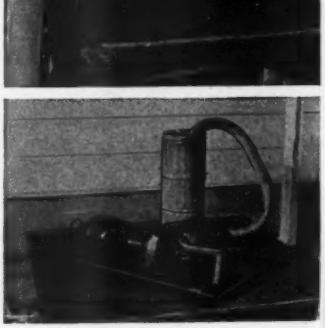
Prof. Roy Bainer, in charge of the work, writes:

"Plans were furnished to several of the sugar companies and ten of the units were built. They are scattered from Canada through Michigan, Colorado, Utah, Idaho and California. Our best estimate is that sheared seed will be used on between ten and fifteen thousand acres this year.

"In one area in the Sacramento Delta region some 4000 acres have been planted at seeding rates as low as two pounds per acre with the result that in most instances no thinning will be required. In general, the use of this seed will make it possible to do the thinning with long handled hoes rather than with stoop labor, and we will end up with a higher percentage of single plants at harvest time, which was one of the chief reasons for doing this work.

A 4-H Silo Filling Demonstration

These boys, Hugh Ervin, left, and Dean Basset, right, are giving a demonstration calling attention to the advantage of roughage in dairy feeding. The boys both live on Route 3, Charlotte, North Carolina. They constructed the demonstration equipment themselves. The cutter has knives made from old hacksaw blades. It will really cut roughage when driven by the little 1/6th horsepower motor. The demonstration, in addition to being given in North Carolina, was put on by the boys at the National Dairy Show in Memphis last October.



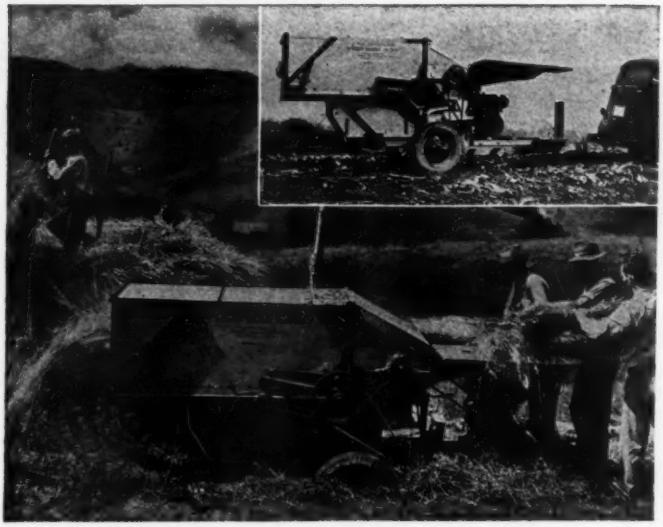
SAVE SERVICE

This is a war column. Its purpose is to help you keep your equipment in good usable condition, to avoid breakdowns which may be costly, and to save service calls which use gasoline and rubber. You may save someone else a service call, but you yourself will benefit most by keeping your equipment serviceable—in war or peace. Fuses, wiring, motors, appliances, pumps, machines and heating devices will be discussed. Write us about any special problem you have; or see your power company rural service man.

A fuse is a safety valve in a wiring system. Fasten down the safety valve on a boiler and you may blow up the boiler. "Fasten down" the fuse in a wiring system and you may burn up the wire and the building it is in. Do not over fuse. Use the size the circuit was designed for. Using a heavier fuse, or pennies behind the fuse "ties down the safety valve." The fuse protects the wiring and the building—not the appliance. If your power goes off, always look for a blown fuse. If just part of the lights are off, look for a blackened fuse in the circuit panel. If all power is off, look at the main fuses. Keep a few extra fuses of each size on hand. It may save you valuable time and a trip to town. Stand on a *dry* board when you change fuses, or open the main switch to avoid shocks. Check the fuses before you waste tires on a service man's car.

If the refrigerator stops running, the fusetron on the compressor motor may have blown. Keep an extra on hand. It once cost me a $2.50 service call to learn that. Not all refrigerators have fusetrons.

All motors require oil. If there are no oil cups or oil holes, the motor may have sealed-in bearings that remain oiled for the life of the motor, or it may have ball bearings which will need cleaning and repacking with grease once in several years. Such greased ball bearings should have a few drops of oil once a year to keep the grease soft. Motors using oil *should not be over oiled.* A few drops in oil holes every month or two will suffice. Too much oil will get on windings and cause them to deteriorate and accumulate dirt. Motors should not be oiled when running as the oil reservoirs will fill up to overflowing.



5 H. P. Trailer Thresher

This little threshing machine was devised by the Agricultural Engineering Development Division of the TVA as one of the steps in getting away from a corn and cotton agriculture in the South. Lespedeza, soybeans, clovers and small grains all help in shifting from a one or two crop system to a system in which cows and chickens furnish products for home consumption and legumes and winter grains help save the soil which erodes so badly under constant cultivation. Southern farms are small. The areas devoted to grain and legumes often do not warrant large investments in threshing equipment or even moving large equipment to the small fields. As a result, many of the small areas of grain which were planted a few years ago had to be flailed out to get seed for the next crop.

The little thresher mounted on a two-wheel trailer and which can be pulled behind a car, fits nicely into the program. It has been in the process of development for some six years. It is now being manufactured in North Carolina. The power unit is on a platform under the feed table. It calls for a 7½ hp gasoline engine or a 5 hp electric motor. The thresher is ready to operate at once when it arrives at the field. Construction of the machine is simple and all parts are readily accessible for inspection and adjustment. It is reported to have had the following capacities under test:

Oats	50 to 90	bu.	per	hr.
Barley	30 to 60	"	"	"
Wheat	25 to 50	"	"	"
Rye	10 to 20	"	"	"
Soybeans	15 to 30	"	"	"
Lespedeza	10 to 20	"	"	"
Other clovers	½ to 2	"	"	"

★ ★ ★

We Still Need Scrap to Win This War

Sell your scrap—
All metals.

All rubber — *even one* milker inflation — the total adds up to tons.

And don't make scrap out of good equipment—take care of it.

★ ★ ★

Electricity Saves Waste

By MRS. JOHN F. DWIGHT,
Des Moines, Iowa

SAVE Waste! Sure—but to save anything takes time. Our family was busy every minute. What we needed was a 40 hr day!

We checked our time losses. First, every morning some members of our large family had to be called too many times, sometimes getting peeved. We decided on a standard birthday gift—an electric alarm clock. Now each one does his own calling and the family greeting is a cheery "good morning" instead of "get up—you'll be late! Hurry!" (Be sure under no conditions to call anyone. Let them be late once.)

Automatic Grinding Saves Saturday

Next, during school days the boys' chore time is limited, and most of Saturday was taken up grinding and mixing feed. We got an automatic switch for the small feed grinder and with overhead bins they can grind as they chore. They were investigating a mixer when—bang—cold, terribly cold weather and the boys got the flu. Well, with tending the sick and doubling up on the work, the hens were neglected for about a week with no early lights and only frozen water 'till noon. The result was a terrible drop in egg production just when eggs were highest. We had worked hard in February and March to have good laying hens in winter. We forgot the mixer for the time being, and ordered instead an automatic time clock for lights and fixed our water with an electric heater. We had paid for these things, without having them, in the drop in production.

At our home we fix something outside, then something inside. The house was already equipped with the ordinary washer, ironer, lights, running water, etc., but we could still see many ways electricity could save time and waste. We really wanted a dishwasher, but as we put up an average of six lunches a day, our bakery bill is always large. It averages about $12.00 per month. Now we are doing our own baking and having more for the stay-at-homes. It is estimated that baking saves 50% even when you include such things as interest and depreciation on the kitchen itself. We purchased the most efficient—not the classiest looking electric mixer, beater, grinder and churn on the market, we think. The baking saving will certainly pay for it. Some extra time is used in baking, but was more than made up by churning electrically. We also put a motor on our old cream separator—and we certainly saved the boys' time there. The bread is kneaded electrically while we still wash dishes by hand.

For years we have saved the small amount of left overs from our table in our electric refrigerator, but the big loss we have not saved is in our garden! We canned all we could, but the hot, hot, tiring work always wore us out before we had canned all we had. I've noticed nearly all gardens have an appalling amount of loss, due to poor management, sickness, lack of canning time or other pressing duties. Sometimes we have had an additional loss of canned goods, like the year all our asparagus spoiled and we never knew why. Well, we hope all that is past. Through the gracious help of the Extension Department of the College at Pullman, Washington, we have completed plans for a 35° cool room 8′ x 10′ x 5′ 6″ and a zero, top opening box 2′ 6″ x 3′ x 8′. Today we are to receive the estimate from our local company for the compressor. This storage will hold food for 12 and guests. We have had a locker the past eight years in town and the expense of that, in time, tires and gas, with the rentals would have paid for this freezer. Users of similar cabinets to whom we wrote reported the use of not over 98 kw-hrs per month. Our low rate when we started cooking with electricity was dropped from 3c to 1½c per kw-hr. The tax savings will pay for the freezer operation, for there is no income tax on what one produces and consumes at home; neither is there a sales tax. Also when we sold our vegetables and meat, we sold *at wholesale* and *rebought* at retail. We will be amply repaid and have all the added convenience of home storage. We can feed our family as dieticians are asking us to do—and save much time and freight hauling. In addition, we're hoping that the accumulated savings and the extra eggs from the hens will buy that much wanted feed mixer and dish washer.

Homemade grinder stand. This motor grinder stand was made by Millard Stacy of West Unity, Ohio, from an old truck wheel, a piece of pipe and a flat piece of steel which he welded together.

Cigarette Fires

Studies by the Bureau of Standards show that in 1937, 54,000 cigarettes were lighted every second and were thrown away at an average length of one and one-quarter inches and then burn 8.5 to 12 minutes. Six out of nine burn full length. On a dried grass pad with a wind of three miles an hour, 85.3 percent of the cigarettes ignited the grass. Average time of ignition, five minutes. On Douglas fir duff in Washington, 20 tests set 19 fires. On rotted Douglass fir wood, 10 tests set five fires, but the relative humidity was above 25 percent which is the critical point. *From "Conservation"*

Chain Hoist for Farm

Small Industrial Hoists That Save Much Hard Labor on Two Farms

By **BRUCE FEARN**
Philadelphia Electric Co.

LAST summer Bill Heller of Center Point, Pennsylvania, got "fed up" on the heavy labor of getting bags of grain into the upstairs storage rooms on his poultry farm. He talked to the rural service man of the power company about it and they decided he could save a lot of the hard work by using a small electric power hoist such as is so commonly used in other industries. The result was the purchase of a ¼ hp electric chain hoist.

One of the pictures shows Mrs. Heller using the hoist. It is not too heavy to be moved around easily from place to place and it will lift a load of 250 pounds at the rate of 34 feet per minute, or they may be geared for lifting 500 pounds 17 feet per minute. The sacked grains are now handled by this hoist. Mr. Heller is figuring out a way now of using this little hoist to operate an elevator for carrying feed to the different floors of his multiple-deck hen house and to bring down the eggs.

After Mr. Heller installed his hoist, a neighbor, Mr. Harry Densten liked the labor and time saving possibilities of it so well that he bought one like it. He says that if the heavy lifting is done in industry with power hoists, there is no reason why they will not lift just as well for a farmer who has a lot of lifting to do. The second picture shows the Densten hoist lifting a bag of grain.

These little chain hoists are equipped with reversible capacitor motors. There are two control ropes. Pull the upper handle to hoist; release it to stop. Pull the lower handle to lower; release it to stop. The hoist has all ball and roller bearings and is supplied with two different brakes, each capable of holding the full load. They come equipped with chain for lifting 10 feet, but longer chains can be supplied. They have 15 foot extension cords and are ready to use by plugging into a 115 volt circuit. Similar hoists come in sizes of 1/3, ½ and 1 hp suitable for loads up to 1000 pounds. Prices range from about $120 up.

Above: Mrs. Heller manages the hoist on the Heller farm. When hung up and plugged in, one only needs pull the handles to elevate or lower the load.

Right: Robert W. Ferguson hoisting sacked grain on the Harry Densten farm. The load is under constant control.

Guard Against Hay Fires

Saving is as important as producing, possibly more so when the barn as well as the crop is involved. If you must put hay in the barn in moist condition to save the leaves and quality, you should first install one of the new barn-type hay finishers with motor driven blowers and a duct system for discharging air through the hay. If you have damp hay and no blower, watch it closely for dangerous hot spots. If there is evidence of excessive heating, do not turn the hay or attempt to remove it from the mow until you have a fire department standing by ready for immediate action. Smouldering hay may burst into flame when supplied with oxygen from the air.

Lacquer Lined Cans

As a safeguard against the shortage of tin and deterioration of milk utensils, the Bureau of Dairy Industry, USDA, is experimenting with lacquer-lined milk cans. The lacquer is made from lactic acid (from milk) and vegetable oils. The cans are in regular use from the Beltsville Research Center.

Chinese Were Chick Hatchers

The commercial hatchery industry is one of the oldest of so-called modern industries, but large-scale production of baby chicks by application of artificial heat originated in the United States and is primarily a product of the twentieth century, says the U. S. Department of Agriculture. Both the Egyptians and the Chinese knew how to hatch chicks artificially more than two thousand years ago, using crude equipment and laborious methods.

SPARKS TO SINGE THE AXIS FINGERS

Sure, he's just one farmer sharpening his mower blade.

But there are hundreds of thousands like him—American farmers all over the country who are sharpening their tools, cultivating row crops, reaping early grains, working as they've never worked before to help America win this war.

You are in the thick of this victory effort. Every hour you work, every acre you till helps to hasten the day of Axis defeat.

The food you produce is one of the most powerful weapons of freedom—a weapon as vital as the steel in our battleships and the fuel in our planes. To our workers, your food means the health and energy to outstrip enemy war production. To our soldiers, it means the stamina and strength to outfight the Nazis and their Japanese partners.

America is counting on you to do your share for Victory.

★ ★ ★

In every type of farming, electricity can bring you greater speed and efficiency. Electricity helps you make your farm provide more food, better food. With *hired* help hard to get, *wired* help takes over many jobs—*gets the work done.* At home, electricity increases the comfort and enjoyment of the leisure hours which make possible the best, the hardest work.

Find out all the ways electricity can help you on your farm. And remember: now as always, the name Westinghouse stands for the highest development of all the good things that electricity makes possible.

Westinghouse

ELECTRICAL PARTNER OF AGRICULTURE

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa.

This is the inside of the Knolle Bros. dairy farm at Sania, Texas. It shows the use of fans for creating a breeze in the barn.

Summer Dairy Barn Ventilation

Dairy barn ventilation is usually discussed as a winter practice to keep down dampness and decay and to promote the health and comfort of cows and men in barns during cold weather. In the South, dairy barn ventilation is often more of a summer problem.

Last summer O. E. Copeland, Dairy Husbandman, and P. T. Montfort, Agricultural Engineer, installed an *attic fan* in the two-story dairy barn at the Texas Agricultural Experiment Station. The purpose was to keep down summer temperatures and humidities in the milking barn. The fan was a slow speed type, 42 inches in diameter, belted to a one-quarter horsepower motor. It had a capacity of 16,000 cu ft of air per minute and cost under $30. While no dollar and cents records of increased production are available, the opinion of the dairymen was that it was "worth a lot."

Of interest also is the opinion of a group of engineers who observed this installation, and fans of equal power installed in the barn to create a breeze directly on the cows and men. Most of them agreed that the attic fan would be better, although it did not create a breeze in the barn. The reasons given were that the attic fan would remove more of the warm air and moisture (with windows open in both cases) and leave the barn more comfortable than the direct blast fans, particularly since cows are not cooled by evaporation of perspiration from their skins.

Grass Superior to Hay

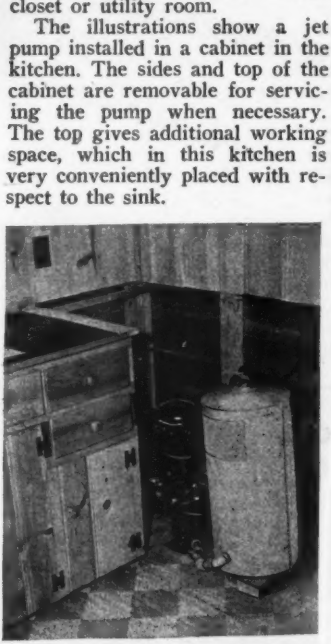
A comparison of artificially dried grass cut four times during 1939 and of hay from the same plots cut once shows the yield of dry matter per acre to be the same, but the yield of crude protein per acre from the grass plots to be twice as much and of carotene to be 54 times as great as from the hay. Very little loss of carotene occurred during the artificial drying process, but practically all was destroyed during field curing of the hay. The product, after a winter storage, was still similar to good fresh pasture. —Del. Sta. Bull. 220.

When a man first joins the army he eats about 25 percent more than he did in civil life, according to Food Industries. A soldier consumes over 5 pounds of food daily; shipping weight is 6 pounds. For an army of 3½ million men, this means the production, purchase, shipping and handling of 20,000,000 pounds of food daily.

Water System in Kitchen

In homes without cellars the jet pumps which are now so popular may be placed in the kitchen very satisfactorily. These pumps have no reciprocating parts, gears, pistons, belts or valves and are consequently quiet in operation. The pipes may be carried below frost line to the well. This makes it possible to install the pump in the kitchen, storage closet or utility room.

The illustrations show a jet pump installed in a cabinet in the kitchen. The sides and top of the cabinet are removable for servicing the pump when necessary. The top gives additional working space, which in this kitchen is very conveniently placed with respect to the sink.



Electricity Boosts Production

LAST December we offered prizes for farm experiences in how electricity aided farmers in increasing production. The winning letters were published in the February issue. There were so many good letters, however, that there was not space for all of them. A few that were saved are printed below. We are still in the midst of this war—or possibly only at the beginning of it. These methods of increasing production, and doing it at a profit with electricity, are still timely and much to the point in the farm program.

• **We boosted production on our farm** (1) With lights in the hen house which produced an almost immediate increase in eggs laid. (2) An electric brooder enabled us to raise more chickens because it required less work, and it was safer and more economical. (3) An electric motor on the cream separator released time which was used in milking more cows. It also did a more uniform job of separating and increased the returns from our cream. (4) At first we tried to keep our kilowatt consumption down to the minimum, but we soon learned that even the household electrical equipment had its place in boosting production, for it saved time, which was used in the garden, poultry yard and the corn field as well as in Red Cross sewing and church activities.

MRS. HOWARD F. CAPWELL,
Elmwood, Neb.

• **A milking machine** not only saves at least half the time and labor required to milk by hand, but also makes the production of clean, low bacteria-count milk, which is one of the Nation's greatest defense requirements, a sure and easy matter.

MR. SYLVESTER NACKERS,
Kaukauna, Wis., R. 2.

• **We boosted production** by using electric motors and lights. Now that we have our own electric grinder, we grind feed just as we need it. It makes better feed for our cows and helps increase production. It used to cost over $1.50 per week for grinding feed when we had a portable grinder come. Now we grind our feed and run all the other motors for the house and farm and also the lights for just a little more than the feed grinding cost. Our milking machine gets more milk with less labor, and our motor driven cream separator saves more cream. Lights in our hen house get a better egg production at very little cost. We also save labor and some feed by having running water in the hoghouse and by using a motor on a hand sheller to shell the corn for the hogs.

ALBERT COOK,
RFD 1, Marshall, Mich.

• **We have 300 layers** and were getting 37 eggs per day. We decided to try lights on them. In two weeks' time we were getting 128 eggs and they are still gaining (December, 1941). We think that is fine.

MRS. GEO. KLEIN,
R. R. 2, Vincennes, Ind.

• **We bought an electric brooder.** Before, we had a gas brooder, and out of 250 chicks, 35 died. Out of this same number of chicks in our electric brooder only 5 died. They are also more lively.

ROBERT H. BROWN,
R. 2, Hopkins, Minn.

• **When our February pullets** slumped in egg production to 26% almost over night, we started using lights from 5:30 a. m. to daylight and from dusk to 8:30 p. m. Had them up to 65% today (December 13) sixteen days later. Forced feeding under lights did the trick. We had no moult.

MRS. V. W. TIDWELL,
R. 2, Palouse, Mich.

• **We put electricity and a radio in our barn,** and now we are getting from 3 to 4 quarts more milk per day.

RAY CLARK,
R. 1, Coffeyville, Kan.

One-Half Horsepower Grain Elevator

By ED. OPDENHOFF

The two pictures show the elevator I built recently for use on my farm near Kingfisher, Oklahoma. The elevator is 8 inches wide and 14 feet long and is operated by a one-half horsepower electric motor. It is made similar to the plan printed in the January issue of ELECTRICITY ON THE FARM, but is larger and has greater capacity. On wheat it elevated 7 to 8 bushels per minute, and it will handle 10 to 12 bushels of oats per minute.

The dump box shown makes it easy to empty a wagon and elevate into a bin. The box is attached to the lower end of the elevator with a loose pin hinge. The box is held to the proper slope on a saw-horse. The box can be raised up to clear the drive way and then lowered for elevating.

One man can move the elevator alone by lifting the motor out of the slide that holds it in position and removing the dump box by pulling the pin. This outfit is going to be a big help on my farm this year as men are hard to get; it will also be mighty convenient if the wheat should be a little damp and need turning.

Electrical Housekeeping

Edited by **GAIL MEREDITH**

Dry Them to Save Them

IT doesn't pay to overlook a single bet in food preservation this year. So if your cans are full, or if you have no pressure cooker for vegetables, if you've cramed the storage locker to bursting, remember that there is still another way of food preservation so old you may have forgotten all about it.

That is the simple way of drying.

Drying has several features that recommend it. It is a safe way; that is essential. It is inexpensive. The resulting product is easy to care for and takes little space. Drying can be done with very simple, inexpensive equipment. In faet, fruits and vegetables may be dried right out under the summer sun with only a bolt of cheese cloth and big trays of wire screening.

Rapid Drying Saves Flavor

They may be dried that way, I say, but the color and the flavor of the food is best preserved by rapid drying. So it is desirable to have heat you can control. Ovens are frequently used for partial or complete drying with very good results, though the most satisfactory method is a specially designed dehydrator such as Mr. Kable described in the June issue.

Corn is one of the more difficult vegetables to can, but it is easy to dry. And dried corn comes to the table as yellow as butter, and delectably sweet and appetizing.

Success in saving by drying depends on using sound, ripe vegetables, the kind you would pick for the table. The dried vegetable cannot be one whit better than it was before it was dried. If it is possible, pick your vegetables early in the morning and start right off on the drying. The vegetable begins to lose quality and food value as soon as picked.

Clean them as you would if you were canning them. After you've husked and trimmed the ears, immerse them in boiling water for 8 to 12 minutes to set the milk. When the ears are cool enough to handle, split each row of kernels lengthwise, then cut them from the cob, scraping the hulls with the back of a knife to get all the milk. Spread the corn out on trays in layers not more than half to three-quarters of an inch thick. If you are using a dehydrator with temperature control, keep the temperature at 130 to 140 degrees F. Stir the corn during the drying to keep the grains separate, and dry it until it is hard and semi-transparent.

String beans should be full grown but crisp and green when you dry them. Cut them up in 1-inch pieces and boil them in salt water, 2 tbsp. of salt to each gallon of water, for ten minutes; drain, then spread them on trays and dry them out in the sun, in the oven, or in a dehydrator until they are dry and brittle.

Peas, like beans, should be mature but still green and tender. They need only two minutes boiling, then they, too, can be drained and spread on the trays to dry.

Farm and Home Drying of Fruits and Vegetables — Farmer's Bulletin No. 984, Superintendent of Documents, Washington, D. C. (10 cents).

Home Preservation of Fruits and Vegetables — Oklahoma Extension Circular No. 260.

Home Drying of Fruits and Vegetables — Oklahoma Extension Circular No. 293, Oklahoma Agricultural Experiment Station, Stillwater, Okla.

Home Conservation of Fruits and Vegetables — Nebraska Extension Circular No. 922, Lincoln, Nebraska.

Home Preservation of Food —Extension Circular No. 94, University of Arizona, College of Agriculture, Tucson, Ariz.

Home Drying of Vegetables and Fruits—Circular No. 87, Utah State Agricultural College, Logan, Utah.

Finish at 165 Degrees

Peas should be started at 115 to 120 degrees F. and green string beans at 125. The temperature of the dryer should rise gradually to 140 degrees for both.

Any vegetables or fruits dried in the sun should be given a final heating in the oven at 165 degrees F. to make sure of ridding the food of any micro-organisms before it is stored, and to insure a perfectly dry product. The food dried in the oven or the dehydrator would already be free from these organisms as well as from insects or insect eggs. But no matter how it was dried, it should be protected while it is cooling and should be packed as soon as it is cool, in dust free, insect proof containers, small paper bags, boxes, cans, or glass jars. We say small boxes so you can open and use the contents of one of them without exposing the whole supply to the air.

If you want to make the containers, even the paper bags, quite dust free or air tight, you can dip the closed end of the bag in melted paraffin or pour paraffin over the cracks between cover and box.

When you get ready to cook the vegetables you have to get the moisture back in them. You do this by soaking them in water. With most vegetables, overnight soaking is recommended.

Cook the vegetables in the water you soak them in. Cook gently, just until tender. Overcooking will spoil both texture and flavor.

The relative vitamin content in fresh and dried vegetables is still under investigation. W. V. Cruess of the California Experiment Station, writing recently on the subject in *Food Industries*, says he has found that steam blanching will save the water soluble vitamins otherwise lost in the blanching water, and that cooking dried vegetables in the water in which they are soaked preserves still more.

Most of Vitamin C is lost in drying unblanched vegetables—blanching minimizes this loss. Vitamin A is fairly well retained, but decreases if the food is left out in the air. Vitamin B is known to be well retained in both sundried and dehydrated fruits. Ribo-flavin is a very stable vitamin and probably stays. Nicotinic acid is also stable to heat so it is probable that losses of either of these B vitamins are small if the food is dried rapidly and under good conditions.

Milk

SOME like it hot; some like it cold. But whether they like it or not, everybody who is giving a sober thought to living up to the Government yard stick

A dinner for a six-year-old.

for good nutrition is trying to get that pint of milk into the day's food for each grown up, and that quart of milk into the meals for each child.

The simplest, but by no means the only, way is to drink it straight. Folks who like chocolate, think chocolate milk is a great improvement over white. Or you can add sweetened fruit juices to cold milk very slowly, stirring them constantly as you pour them in. This makes a pleasant drink. Use just enough fruit juice to give the flavor and serve the drink as soon as mixed.

Some one told me the other day that her folks make lemonade with whey instead of water and find it both palatable and refreshing.

Milk plays an important part in those dishes that gather all the meal but salad and dessert under one roof. This vitamin rich, appetizing combination of leftovers, bound together by a smooth white sauce is a good example:

2 cups diced carrots
1½ cups diced celery
6 medium potatoes, sliced
3 tbsp. butter
2 tbsp. flour
2 cups milk
1 cup meat stock
1 tsp. salt
3 tbsp. grated onion
1 cup cooked peas
2 cups diced cooked meat
½ cup sifted bread crumbs
3 tbsp. melted butter

Cook carrots, celery, and potatoes separately until just tender. Make a white sauce of the milk and meat stock. Add salt. Combine the ingredients with the white sauce and put them in a buttered casserole. Stir the crumbs in the melted butter and sprinkle them over the top. Bake at 350 degrees for about half an hour until the crumbs are well toasted and the dish is heated through.

The milk doesn't show in this inviting cheese mold but it is there just the same.

Soak 1½ tablespoons of gelatin in three tablespoons of cold water until it is soft, then dissolve it over hot water. Soften one cup of cottage cheese with a little plain cream and press it through a sieve. Add to this one cup of grated American cheese, the gelatin, a teaspoon of salt, an eighth of a teaspoon of white pepper, and two tablespoons each of chopped pimiento and chopped green pepper, with half a cup of diced American cheese.

To make the mold look prettier when you turn it out, it is a good thing to sprinkle more of the diced cheese in the bottom of the mold. Then fold in one pint of cream, whipped stiff, and turn the mixture into a wet mold. Place it in the refrigerator to chill.

The salad is pretty served on a plate big enough to allow for generous garnishing with lettuce or water cress. It is equally good with the center full of vegetable salad or slices of fresh fruit.

Keep the Mixer Mixing

There is quite a long stretch between breakfast and dinner, but on busy days, it never seems quite long enough to get everything done. That is one reason for mixing machines. They do come

The proof of the pudding.

pretty close to letting you do two jobs at once.

If you have one, you know how much time and how much strength a mixer saves. It would be too bad not to get every bit of service you can from such a machine, and doubly unfortunate to let it stop working through any carelessness of yours.

Have Mixer Handy

The women who have one report that they are much more likely to keep the motor at work if they have the mixer right on their work table in easy reach, with the cord adjusted at just the right length. And they are much more likely to get full service from it, they say, if they study the instruction book and learn how to make the mixer do the heavy work on the dozens of jobs that must be done to get the meals.

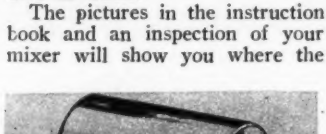
The instruction books carry full directions for the care of the mixer, too. They are simple and short. How to keep it clean and how to keep it running smoothly with oil and grease.

It is a good thing for the mixer to cover it with a light silk or cellophane cover to keep it free from dust. The beaters come off so you can wash them in hot, soapy water. They need to be rinsed well and dried thoroughly before you put them back on the motor.

You can wipe the motor, the base and the revolving disc with

a damp cloth, but you should never put either the motor or the disc in water.

The pictures in the instruction book and an inspection of your mixer will show you where the



This double barreled gadget fits on to a kitchen mixer. If you feed peas into one side, they come out hulled; if you slide beans through the other, they come forth sliced.

oil goes. If you use your mixer a good deal the motor should be oiled once every two weeks, with lesser use, once a month is often enough.

The grease in the gears should be checked once a year. If fruit juices or water have trickled into the gear compartment, they will thin out the grease so that it is likely to run down the spindles of the beaters. If this happens to you, when you are mixing an angel food, say, you know that the grease should be checked at once.

You may be able to repack the gears with grease yourself—with the help of the instruction book—or you can turn the job over to an experienced service man.

When you put the beaters in place, take hold of the stem and push them in straight to prevent bending them. Make sure they are in tight before you start the motor.

Help your motor by scraping food from the beaters and from the edge of the bowl with a rubber spatula. A metal spatula or spoon might catch in the blades and bend or nick them.

Don't Overload Motor

Do not try to make the motor mix a load too heavy for it.

Be careful not to subject the porcelain or glass bowls to any sudden changes in temperature.

If you are mixing something that spatters, spread a paper towel around the bowl and the beaters. This may save cleaning up the wall and table.

Let the mixer free your time and energy for the jobs it cannot do.

My Sewing Machine Earns Me Money by

Helping me keep my house and family comfortably and well dressed. As a rule I buy most of my materials out of season and find that I'm saving so much money and being so much better dressed. My four-year-old daughter's dresses are often made for fifteen or twenty cents from pieces off a remnant counter and they don't look as if they came from a bargain counter.

My bedroom has been completely remodeled and refurnished by aid of my machine at the cost of a very few dollars. Curtains, drapes, a dressing table (made from an old wash stand), and a "Hollywood Bed" (made by quilting a satin remnant and covering an old iron bedstead) and a string rug, machine made, completed the renovation.

The living room has been brightened by machine made slip covers and I'm finding every day that in "keeping things up" around the home that a stitch in time saves nine and that by having a "machine mending hour" after the family wash that I really do save the pennies.

"School program" and "Dance School" costumes for a little girl just couldn't have been managed had they not been made at home.

Dorothy Rogers

How My Mixer Saves Me Time

(*April Contest Winner*)

"My mixer saves me time and strength each day. It beats the batter for pancakes or muffins and the omelet for breakfast while I lay the table. Later, it is brought into use whisking up a cake or pudding for dinner, beating a meringue for a pie, or fluffing up a pudding sauce. If my dessert happens to be ice cream, the mixer puts that velvet smoothness into the custard, and whips the cream before combining and putting the mixture into the freezing trays in the electric refrigerator. Electricity doing the beating has a lot to do with the success of the finished dessert without taking any of my strength. Icing for cakes, boiled or the uncooked kind, are quickly and easily made with the mixer.

"My family is fond of cream puffs, angel cakes and true sponge cakes. To make this pastry it required a great deal of beating and left me tired. Now the electric mixer does all that and the finished product is better than when beaten by hand.

"In making yeast rolls and bread I find by using the mixer to beat the sponge, less kneading is required. That lightens the labor of bread making. Even the best cooks are apt to make mistakes, so when the custard or gravy turns out lumpy a few whisks with the electric beater smoothes things out and the day is saved.

"Gone is the tired right arm since I have learned to use the mixer to mash turnips and potatoes. I put the hot milk and butter in the drained potatoes, and with low speed break all the potatoes up, then I turn the button to high speed and beat them two minutes and they are light and fluffy.

"When squeezing lemons, oranges and grapefruit I use the fruit juice extractor attachment, thus I have time and get a larger amount of juice from the fruit. At pickling time the cutting at-

. . . . . More on page 26

July Contest

If you can turn a faucet in your kitchen and have water run out, you probably have dozens of ideas about the time and the strength having water piped in save you. If you are just dreaming about getting a water system when the war is over and metals go back to the pleasant works of peace, you will still be full of ideas on the worth of running water in your home.

That is the subject of our contest letter this month. The writer of the winning letter will get $5.00.

Send your letters in to Gail Meredith, 700 S. Mills St., Madison, Wisconsin, by July 31.

Be a Robinson Crusoe

Through the courtesy of Mr. Jos. S. Webb, Agricultural Engineer for the Philadelphia Electric Company, we are privileged to publish parts of a letter to him from Mr. R. Borlase Matthews of Sussex, England. The letter was in answer to a request from Mr. Webb for suggestions on what farmers in this country might have to be prepared for.

Mr. Matthews is a well known electrical engineer who operates a large electrically equipped farm in England. He was a pioneer in British rural electrification, has tried out much electrical equipment on his own farms and until wartime was editor of the British magazine *Electro-Farming*. Harking back to the story of Robinson Crusoe shipwrecked on a lonely island, Mr. Matthews writes:

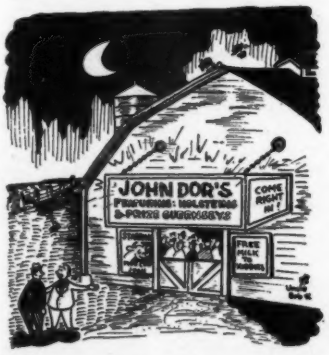
"The best plan is to imagine you are all Robinson Crusoes and will have to live on what you have or can make or do yourselves.

"Here it is practically impossible to obtain spare parts of any kind for repairs. Electric kettles disappeared from the market entirely about 18 months ago. Now electric motors are unobtainable, likewise cookers. Stock ample brushes and holders and fuses for electric motors. A coil of twin cable and of flexible cable, together with a dozen lamp holders and switches, would be most useful on every farm for replacements due to wear and tear.

"As regards the farms, they will have to consider themselves as self-contained. They will find that railroad rates will become exorbitant and, what is worse, so congested that deliveries cannot be made. So they must prepare to grow all their own foodstuffs. As there will be a shortage of cattle feeding stuffs from the mills, any old grinding and crushing mills on the farms should be put in working order and spare belting stocked. Motor drives should be rigged up ready. The rations for cows and other livestock will have to be altered. Farms, unused to the work, will have to grow truck stuff—this means getting new implements. *Labor will be very short* and gasoline even will be short (due to congestion of delivery).

"You may think the local cities live on the local country, but they don't, and when the railroads fail to supply them, they will look to the local farmers.

"Well, it is difficult even in a long letter like this to cover everything, but if you get the Robinson Crusoe idea, you will have broken the back of the problem. The defense forces will make an enormous demand on farm products, so civilians will be extra short."



"Who are we to say he's nuts? He sells more cattle than any dealer in the state."

"Jerky," made from raw venison or other meat dried before the fire, and dried corn and other vegetables were Indian staples long before there was a tin can.

British Agricultural Engineering

The Oxford "Institute for Research in Agricultural Engineering" has recently been taken over by the British Ministry of Agriculture and renamed "The Institute of Agricultural Engineering." It will be under the Agricultural Machinery Development Board and will have to do primarily with the testing of agricultural implements and machines.

Musings of a One-Time Pioneer

Today I looked back, as a mortal will,
To my home across on the other hill,
And felt I was rich in my little shack—
(But please don't think that I want to go back!)

For, since I came, like a fairy queen,
I have waved my wand and the genie seen;
Touching a button, I cry "More heat!"
When I want to warm my chilly feet;
When winter days bring early night,
I press a button, and there is light;
If music I wish or for chatter I yearn,
There is only the radio's knob to turn.
I lift the phone and converse with friends,
Turn a tap for water that never ends;
No more do I climb, in the dark and cold
To the hillside house, as in days of old.
My pioneer habits I now disdain,
I stay inside—and pull a chain.

But alas for pride—my Aladdin power
Deserted me in the twilight hour.
I pushed a button, demanded heat
To cook for my child his daily meat
No answer came. When I ordered light
A genie snickered at my plight.
Out of doors a wind blew wild—
(And me inside with a hungry child!)

The furnace too had ceased its hum,
And no more heat from that source would come.

I found a candle, its humble light
Could not be scorned on such a night;
Brought wood for the fireplace—
—its welcome blaze
Reminded me of the other days—
Found a little round oil stove, was glad, for then
Potatoes would cook, though I couldn't know when
I looked at the fuses which seemed all right,
(And thought of the pipes that would freeze that night)
I phoned the electrician—"A falling tree
May have broken a wire; I'll come and see."
But he only got inside the door
When the lights came on like they were before.
So we never knew what had caused our plight
But the story ends, as you see, all right;

And it showed us blessings we had not seen
In the days when we thought our blessings lean;
For with kerosene and a lamp and a stove,
We were quite independent of wires, by jove!
With a strong right arm to cut the wood
The electric wires could stay down for good,
And no matter how the north wind fussed
Though we might freeze, no pipes would "bust."
We were happy enough in our little shack,
But the lights are on—I don't want to go back.

RUBY M. DROGSETH

By
JEROME J. HENRY

Bing Crosby: Study in Contradictions

Bing Crosby is a man of contradictions.

Bing studied to be a drummer, but became famous as a singer. Yet he's never taken a singing lesson in his life.

Most of his female audience finds a great romantic appeal to Bing. Yet he's happily married and the father of a large family.

Bing is continually kidded about his nonchalance and his more or less slow movement. But he's really a busy man—radio, motion pictures, records, horse-racing stables, and other enterprises.

He's hardly ever in his own business offices and yet he was honored by the National Junior Chamber of Commerce as one of the country's "most outstanding young business men."

He has been successful in almost every field of entertainment—but he wants to be an author. THE author of the THE Great American Novel.

Transfers Real Life Experiences to Shows

Al Pearce, the NBC-Red Network comedian who made his "I Hope I Hope I Hope" a national by-word, created the role of Elmer Blurt, the low-pressure door-to-door salesman out of his own experiences.

Al was a salesman for most of his early life. At various times he sold milk (from the Pearce one-cow dairy plant), insurance, roofing, and real estate, and all practically from door-to-door.

It was the town barbershop in San Jose, where Al was born, that really brought his talent to full flower while he was still a lad. Al had a banjo and spent most of his time in the barber shop, playing for the customers' quartet, doing dumb-guy impersonations, and composing gags. Some time around 1929, when the real estate business in which he was then engaged took a nose-dive, it all came back to him, and he turned to radio. He simply took along his "I Hope I Hope I Hope" technique.

From Feathered Hat to Fame

Most girls get the highly prized jobs as Powers models because of their beautiful faces or figures. Not so Ann Eden of the "Lincoln Highway" series. She says she got her job because of her hat.

Ann went from Missouri to New York in 1938 with a bankroll of $345 and ambitious of becoming an actress. But the New York producers kept saying "no." So Ann took a job remaking hats.

One day she created a small chapeau into a crazy little dream with feathers sticking out at the important places. She liked the hat so well that she donned it, and straightway got courage enough to walk into the Powers office and ask for a job.

The great Powers himself interviewed her and Ann swears it was the hat that got him. His eyes were glued to the feathers and he scarcely saw her at all. Now she always wears feathers.

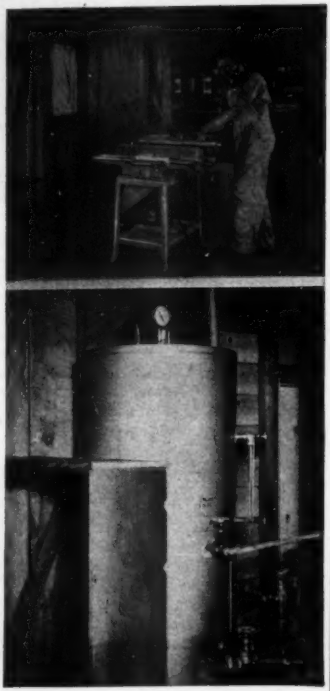
Busy Sade (Bernardine Flynn), of the Vic and Sade Series on the NBC Red Network, has time to turn out a few sweaters for the soldiers, the sailors, and the marines. No more novice at the knit-two-purl-two routine, Bern has been making her own knitted things for years, and can usually spot a competitor a dozen rows and still beat her to the bind-off at the top of sweater.

It was K.P. duty for Al Pearce when he entertained a group of men from the 203rd Coast Artillery, Searchlight Platoon, at his Hollywood hilltop home recently. The whole gang had a swim in Pearce's pool, and then lent a hand in preparing the chicken dinner with all the trimmings. Al peeled the spuds.

Supper time at the home of the Goldbergs, America's best-known Jewish family, find Molly as not only cook but the brains and boss of the group. Members of the family are (left to right) James R. Waters as Jake; Roslyn Silber as Rosalie; Gertrude Berg as Molly, and Alfred Ryder as Sammy Goldberg.

Steam Accumulator In Wenner Apiary

The upper picture shows Mr. Leo Wenner working in his electrically equipped shop at the



Wenner Apiary in Glenn County, Northern California. Mr. Wenner makes his own beehives, does his own repairing, makes shelves and cabinets, and even some very fine furniture for his ranch home.

In the lower picture is an electric steam accumulator which provides steam for operating uncapping knives, melting beeswax, warming extracted honey in cold weather, cleaning honey containers and sterilizing the various pieces of honey equipment. This accumulator replaced a wood-fired steam boiler. Mr. Wenner says, "This accumulator is always ready with a hundred pounds of steam. When we come in with a load of honey, we can start right in uncapping and extracting it."

The steam accumulator is similar to a steam boiler, except that the water is heated more slowly, and with a lower wattage element. Where a boiler is not used constantly, this makes a lower cost installation and with often a much lower operating cost. Since the accumulator is very similar to a large electric water heater, it may often be used on a special water heater rate. An automatic switch keeps the accumulator nearly full of super-heated water which will flash into steam as soon as it is released from the tank.

EARL BURKE

Foreign Commerce Weekly reports that milking machines are being extensively used in Germany. About 6,000 machines have been installed, in spite of manufacturing difficulties, and the present program calls for an additional 20,000.

More Goat—More Milk

A good milk goat can produce ten times her body weight of milk in a single lactation period, experience with the U. S. Department of Agriculture herd at the Beltsville Research Center has demonstrated. V. L. Simmons of the Bureau of Animal Industry, who is in charge of the herd, reports that this ratio is not much influenced by breed but is by size. A well-bred large doe can be expected to produce proportionately more than a well bred small doe. Goats are usually at maximum production at from 4 to 6 years of age.

Rats

Rats can waste a lot of feed and foods that takes someone's time and equipment to produce. A bushel saved is as valuable as an extra bushel grown. Clean up trash piles that offer food and shelter. Rat-proof frame bins and buildings with ½-in. mesh screen wire. USDA Farmer's Bulletins 1533 "Rat Control" and 1638F "Rat Proofing Buildings" are available from Office of Information, USDA, Washington, D. C. Sorry we cannot tell you of a safe effective electric rat trap. We do not know of any. A metal water tank with 4-in. of loose grain in the bottom so the rats can't jump out is the best trap we know of.

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Questions and Answers

Change Battery Fence Controller to A.C.?

▶ **Question:** *I would like to change over a 6-volt battery fence controller to use on alternating current. Is there a transformer made that will cut down the power so it will be safe for the stock and the control unit?* F. R. K., N. Y.

▶ **Answer:** Most battery type controllers operate on a different principle from the alternating current controllers and cannot be used on alternating current even with a transformer. If you wish to be certain that your particular unit can or cannot be used on alternating current, it would be safest for you to write to the manufacturer for his recommendation.

Freezing Cabinet

▶**Question:** *We are considering the installation of a freezing cabinet on our farm. We have the refrigeration machine.*

1. *What would the cabinet plus installation cost? (approximately).*
2. *Would it freeze vegetables and meats preparatory to storage or merely be practical for storage alone?*
3. *What about cost of operation?*
4. *What size unit is needed to supply the needs of four adults and two children?* E. L. C., N. J.

▶**Answer:** Lumber, hardware and insulating material for a 50 cu. ft. freezer box would probably cost in the neighborhood of $100. Coils, controls, refrigerant and installation would likely cost another $100.

Such a box as this could be used for both freezing and storage of foods. By a proper arrangement of coiling or cooling plates you could have a separate compartment for freezing. The extra compartment and controls would cost somewhat more. You can probably buy a cabinet with coils installed ready for connection, from a company making this equipment for from $200 to $300 depending on size and design.

The power consumption of a well insulated 50 cu. ft. cabinet under normal use would amount to probably 70 to 130 kw-hrs. per month.

The size cabinet to buy is a controversial subject. Some farms with families the size of yours get along nicely with 16 cu. ft. boxes, while others do not have too much space in cabinets holding 50 cu. ft. About 30 cu. ft. seems to be a popular size.

Wrapping and Freezing Foods

▶**Question:** *Will you please send me all the information you have on preparing and storing foods in a quick freezing cabinet? Would also like to have the name of the firm that handles stockinettes for packing chickens. By waterproof paper, do you mean wax paper?* Mrs. R. A. S., La.

▶**Answer:** There is far too much to say about preparing, packaging and storing foods in quick freezing cabinets to be included in a letter. We recommend, however, the most excellent bulletin No. 690 on "Freezing and Storage of Foods in Freezing Cabinets and Locker Plants" available from the New York State Agricultural Experiment Station, Geneva, N. Y.

Since the atmosphere in a low temperature storage box is very dry, it is essential to have meat and other products in wrappings or containers which are not only waterproof but also vaporproof. Ordinary waxed and oiled papers do not answer this requirement. Some wax paper absorbs water readily and will tear easily. There are a number of manufacturers of moisture, vaporproof paper made especially for wrapping meat for freezing. Pliofilm (thin rubber bags used for covering poultry) is made by the Goodyear Rubber Company, Akron, Ohio. The E. I. duPont Company makes special grades of cellophane for wrapping. Stockinettes are made by Bemis Brothers Bag Company of Buffalo. Most of these wrapping materials may be obtained from locker plants and some of them from mail order houses.

Pumping Wash Water from Cellar

▶ **Question:** *I want to put wash tubs in the cellar and have no way to drain out the water. Will you please tell me if a pump such as is used on washing machines can be used to pump the water out of the tubs through a pipe into the garden? It will have to be lifted about 4 feet. Will use ¼ hp motor. Would it be best to use a belt drive or direct drive from motor to pump?* H. S. H., N. J.

▶ **Answer:** You can use a washing machine pump to lift the water from the machine out of the basement. Run the pump at the speed for which it was designed to be used. If this happens to be the same speed as the motor or a little less, it will probably give you a little less trouble if it were direct connected to the motor shaft. A V belt drive, however, will be satisfactory. Don't make the belt too tight.

You could also put a concrete sump in your basement floor and al-

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low the water from the washing machine and tubs to run into it *and be pumped out* by an automatic electric sump pump. These pumps are made by most of the manufacturers of farm water systems. They may be operated by a hand switch or by a switch attached to a float which starts the pump automatically as soon as the water reaches a predetermined level.

Homemade Electric Fence

▶ **Question:** *Is there any way to use a Ford Model T coil and a transformer from 115 volts to 6 or 10 volts and use the high tension for a stock fence, instead of using a battery? Is there any manufacturer of electric coils for stock fences on a 110-volt circuit, with directions how to install it?*

J. A. K., Wash.

▶ **Answer:** Homemade electric fence is one type of equipment on which we just do not give instructions for making. There is so much hazard to human life and livestock from homemade electric fence controllers, that we do not advise anyone to attempt to build one for himself. A good approved controller is worth its cost in insurance against accidents.

Why Defrost Refrigerators

▶**Question:** *Why do you recommend defrosting a refrigerator when the frost gets ¼" thick, when we use ice to cool an ice box?*

G. C., New York.

▶**Answer:** The cooling coils or plates in an electric refrigerator are colder than ice. If these coils or plates have a thick coating of frost, this frost will act as an insulating blanket keeping the plates from cooling the air and products in the box as fast as they otherwise would. With frost on the coils the refrigerator has less cooling capacity.

City high school boys go to the aid of the farmer.

Water Logged Pump

Commenting on our answer to J. C. B.'s question in our April issue regarding a knock on each stroke of his shallow well pump, Mr. Fred W. Seeber, representative of The F. E. Myers & Bro. Co. offers this further suggestion: "If this pump or water system is connected to a driven well such as is used in most counties in Southern New Jersey, I suggest that J. C. B. check the draw down in his well by attaching a vacuum gauge to the suction side of the pump. He probably does not have sufficient flow from the well to supply the pump and that would cause the knock.

Ultra-Violet for Candling Eggs

▶ **Question:** *In your April issue of* ELECTRICITY ON THE FARM *in your article on "Black Lights Turn Detective," you mention its value on candling eggs but do not mention the effect on blood spots. Would appreciate further information as to the effect on candling fresh eggs.*

M. K., N. J.

▶ **Answer:** While we have no further information regarding the use of Ultra-violet in candling eggs as reported by Prof. Beresford in our April issue, I am sure he did not intend to create the impression that Ultra-violet was used for the ordinary candling of eggs.

In the use of the black light, there is no visible light coming from the lamp which would illuminate the interior of an egg. The fluorescent light mentioned is produced when the black light strikes the shell of the egg, the material in or on the shell producing the fluorescence. In the ordinary candling of eggs for blood spots, germs, etc., the Mazda incandescent lamp is still standard.

Motor Churn

▶ **Question:** *Can you give me the name and address of a manufacturer of an electric churn of a type suitable for use in five-gallon milk cans or in the old style dasher churn? The motor sets directly on top of the can with a rod down to the cream on which there is a small dasher.*

W. C. G., W. Va.

▶ **Answer:** The type of churn you describe is made by the Warren Churn Company, New Bethlehem, Pa., the Gold Medal Dairy Supply Company, Spokane, Wash., the Handy Appliance Manufacturing Company, Albertville, Ala., and the Alabama Manufacturing Company, Birmingham, Ala.

Change Milk Cooler to Freezer Cabinet?

▶ **Question:** *I would like to get a quick freezing outfit or cold storage unit. Could I fix up one from a second hand or new milk cooler? Is it possible to make over a milk cooler to act as a cold storage unit for meats? Does one have to use a different refrigerant, a thermostat with a lower temperature range or a larger size motor or compressor for the size of the cabinet?*

P. S., N. Y.

▶ **Answer:** So far as I know or have been able to learn after making some inquiries, no one has experimented in making over a milk cooler into a sharp freezing cabinet. Theoretically it can be done. Here is what would be necessary. You would need to add insulating material on sides, bottom and top equal to about 2 inches or 3 inches of corkboard. This could be applied inside the cabinet. You would then need several times the amount of coil used in a milk cooler in order to get the air temperature down to the freezing

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Have it in abundance, right where you need it, when you need it. No more time wasted lugging hot water to utensils or utensils to hot water when your cow barn is equipped with the

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No expensive installation cost. Just plug it in. Slow heating, automatic control and heavy insulation provide plenty of hot water, 24 hours a day, at less cost than you ever dreamed possible.

DEMONSTRATION FREE!

Write today for our free demonstration offer. No obligation incurred. Let us prove the *Dairy-Maid* will save you money.

BABSON BROS. CO.

2843 West 19th St., Dept. B-551, Chicago

point. The same refrigerant could be used as in the milk cooler but you would need different controls for holding the lower temperature. Since compressor units operate at lower efficiency at these low temperatures, it may be necessary for you to have a larger compressor unit or a larger motor or both. This would depend upon how good a job of insulating you do and also how big a load of products you would put in at any one time.

Electric Water Heater

▶ **Question:** *What would it cost to operate a single element electric water heater for 3 or 4 persons on 230 volt AC or 115 volt DC? Is double element better than the single?*
J. O. F., Texas

▶ **Answer:** You have asked a question which is very difficult to answer in a few words. Your hot water cost will depend upon the cost per kilowatt hour for electricity and also upon the amount of hot water which your family uses. Some families of the same number of persons will use five or six times as much hot water as others. The cost should be between $2.50 and $6.00 per month. It takes one kilowatt hour of electricity to heat five gallons of water from 60° to 125°. From this you might be able to estimate your own cost. The cost will be dependent upon the amount of water you use, the cost per kilowatt hour and the efficiency of the heater installation.

The voltage of the heater and the number of heating elements in the tank make very little difference in the cost, providing the water is heated to the same temperature with both installations. This is regulated by the thermostatic control. Double element heaters are often used where the lower element is on an off-peak rate and the upper element is on the metered rate and is used for boosting the temperature of the water in the tank during the daytime. The upper heater will give you a small amount of hot water quickly. The desirable voltage to use will depend upon the service available and the size of the heating element.

Your local Power Company should be able to give you the best information on an economical water heating installation.

Rotenone, common farm spray and dusting material, which is death to insects but harmless to humans, is the army's standby protection against body lice, those carriers of disease which can greatly reduce the resistance of an army.

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Sterilizer for Milk Bottles

The picture is of Dr. Rudolph Nagy, Westinghouse research engineer. He is holding a small U

shaped Steri-lamp in a milk bottle. It is claimed all bacteria in the bottle will be killed in ten seconds. The lamp is designed for use in milk and soft drink bottling plants for final sterilization of bottles just before filling.

"Easi-Hoe"

The accompanying illustration shows a new hoe recently introduced in England. It is made by Messrs. Gascoignes, Lt., Reading, England. It is not on sale in this country so far as we know. It consists of a strand of steel wire stretched tightly between two strong, slightly bent prongs. It is claimed that it breaks the surface with a minimum displacement of soil and covering of small plants. Weeds are cut or dragged out. The blade does not clog, and labor is much reduced over ordinary hoeing.

Micromet

Micromet is a new chemical made from food grade sodium phosphate for stopping the formation of scale and of "red water" in hot water tanks where iron is present in the water or organic matter causes corrosion. It is simple to use. Just put a T in the cold water supply line to the tank with a valve and an enlarged section of pipe to hold the Micromet which must be added once a month. The charge depends upon the amount of water one uses. The average family uses 6,000 gallons of hot water per month. For this quantity the first charge would be one pound of Micromet. Each month a quarter pound should be added. The chemical will be available from plumbers.

New Publications

(*Publications are obtainable from the addresses given in the descriptions.*)

• ELECTRICAL STERILIZING EQUIPMENT FOR FARM DAIRIES. 28 pp., illus. Agric. Experiment Station Bul. 650, University of California, Berkeley, Cal. Different types of elec. sterilizers, tests of elec. steam boilers, steam requirements, water heating, costs, farm survey.

Mixer Saves Time

(Here from page 20)

tachment is put to use grinding all the vegetables for the relishes, another operation, which saves my strength.

"I also use the mixer for beating jello, making the fruit whips and whipped cream. Cream whipped this way is never a failure. I can use a thinner cream and have it well-chilled and it beats up as well as a heavier product, so desserts with whipped cream topping are served often at our table much to every one's delight."

ANN B. CALDWELL,
R. D. 1, Walden, N. Y.

The only man who starts at the top is the man who digs holes.

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Best Letter Contest

SUBJECT: "How Electricity Improves Products On Our Farm"

RULES FOR

JULY LETTER CONTEST

- Cash prizes will be awarded for the best letters or statements on how electricity improves products on your farm.
- Letters need not be lengthy—the shorter the better. Facts and figures are more important than literary style or form of presentation.
- There will be one first prize of $20.00 cash, one second prize of $5.00 cash, and five prizes of $3.00 cash.
- We will also pay $1.00 for any other entries we use.
- In case of a tie each winning contestant will receive the full cash prize to which he or she is entitled.
- We will also pay $1.00 to $3.00 for any photos we can use.
- All members of the farm family to whom this magazine was sent may enter, but each contestant may submit only one statement.
- The decision of the judges is final and all entries become the property of this magazine.
- Winning names and entries will be announced in the September, 1942, issue.
- Send your entry on a plain piece of paper, letterhead or government postcard.
- Entries should be sent to the War Production Contest Editor, ELECTRICITY ON THE FARM, 24 W. 40th St., New York, and must be postmarked before August 1.

INFORMATION SERVICE

As a reader of ELECTRICITY ON THE FARM you are entitled to our information service free of cost. Here is how it works.

Whenever you are seeking information about any piece of equipment or material that you are planning to buy, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you want, just use the blank at right to tell us your problem and we will see that you get the information you want. That's all there is to it. Easy, simple, and it costs absolutely nothing.

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STRIPPED for ACTION

The **MOST IMPORTANT THING** before every one of us today is the winning of this war. Our company's contribution is to supply the best electric service we can with such materials as the Government can spare from its enormous war program.

TWO OF THE ITEMS that affect your electric company very seriously are **COPPER AND RUBBER.** The shortage of both of these materials is so great that the War Production Board will not allow us to extend electric service to any new non-essential industry, residence or farm, except where it is immediately adjacent to our existing electric distribution lines. In cases where a customer now has service which is overloaded by added equipment, the War Production Board refuses to allow us to increase the capacity to improve the service unless it actually becomes so poor as to be practically unusable. Rubber is so scarce that we must eliminate every mile of driving that isn't absolutely required.

Now this doesn't mean that your electric company is going out of business or that you are to have poor quality of electric service. It does mean that we must "streamline" our organization and eliminate every unnecessary operation.

On the other hand, **ELECTRICITY IS ONE OF YOUR GREATEST AIDS** in increasing farm production and in relieving at least a portion of the farm labor shortage. You need electricity and we want to supply it, but neither of us want to embarrass the Administration or do anything that will interfere with or handicap the successful prosecution of the war.

For the present our representatives cannot call on you as frequently as in the past, but we shall continue to send you this magazine to help you make most effective use of your electric service. For further help on any of your farm electrical problems just **WRITE A PENNY POSTCARD**, sending it to our nearest office, Attention Farm Advisor.

YOUR ELECTRIC COMPANY

ELECTRICITY ON THE FARM
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